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10/797,131

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Shingo Itoh

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EXAMINER

MARTIN, LAURA E

ART UNIT

PAPER NUMBER

2853

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/797,131

Applicant(s)

ITOH, SHINGO

Examiner

Laura E. Martin

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 22-33, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 15-21, 34, and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 12, 25- 28, 31-33 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A) in view of Katayama (JP 2000-141627 A).

Numata et al. disclose the following claim limitations:

As per claims 1, 26, 27, 32, and 37: a printhead that moves relatively to the record medium (column 18, lines 26-52); a counting unit configured to count the number of ejected ink droplets to a predetermined area on the record medium from the print head (column 18, lines 26-52); and a comparison unit configured to configured to compare the number of ejected ink droplets counted by the counting unit with a predetermined value (column 18, lines 26-52).

As per claim 3: a counting unit which counts the number of droplets on the paper (column 18, lines 26-52).

As per claim 5: when the printhead forms an image on the first side of the record medium, the counting unit counts the number of ejected ink droplets to the predetermined area on the first side of the record medium through the print head (column 18, lines 26-52, pixels make up an image).

Numata et al. do not disclose the following claim limitations:

As per claim 1: a determination unit configured to determine whether double-sided record of the record medium is enabled based on a comparison result of the comparison unit.

As per claim 2: to record on a plurality of record media, the determination unit determines whether double-sided record of the record medium is enabled for each record medium.

As per claim 3: double sided printing, as well as a control section, which deals with the images on both sides of the paper.

As per claims 4, 28, and 33: the number of ejected ink droplets exceeds a predetermined value as a comparison.

As per claim 5: the print head forms an image on the first side of the record medium and then forms an image on the second side of the back of the first record medium thereby forming images on both sides of the record medium.

As per claim 12: the determination unit determines that double-sided record on the record medium is disabled when an area exceeding a predetermined record density representing the number of ejected ink droplets per predetermined unit area on the record medium exceeds a given value.

As per claim 25 and 37: a reference setting unit configured to set a reference value according to a type of image to be formed on the face of the recording medium.

As per claim 26: the type of image includes colors of the image.

As per claim 31: the type of image includes text and picture.

Katayama discloses the following claim limitations:

As per claim 1, 26, 27, 32, and 37: a determination unit configured to determine whether double-sided record of the record medium is enabled based on a comparison result of the comparison unit [0020] and 0039].

As per claim 2: to record on a plurality of record media, the determination unit determines whether double-sided record of the record medium is enabled for each record medium [0039].

As per claim 3: double sided printing, as well as a control section, which deals with the images on both sides of the paper [0038-0040].

As per claims 4, 28, and 33: the number of ejected ink droplets exceeds a predetermined value as a comparison [0019-0020].

As per claim 5: the print head forms an image on the first side of the record medium and then forms an image on the second side of the back of the first record medium thereby forming images on both sides of the record medium [0018].

As per claim 12: the determination unit determines that double-sided record on the record medium is disabled when an area exceeding a predetermined record density representing the number of ejected ink droplets per predetermined unit area on the record medium exceeds a given value [0018-0020].

As per claim 25 and 37: a reference setting unit configured to set a reference value according to a type of image to be formed on the face of the recording medium [0039-0040].

As per claim 26: the type of image includes colors of the image (figure 1, element 12).

As per claim 31: the type of image includes text and picture [0002].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and methods taught by Numata et al. with the disclosure of Katayama in order to provide a higher image quality.

Claims 6, 13, 24, 30, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A) and Katayama (JP 2000-141627 A), and further in view of Kamei et al. (US 6307981 B1).

Numata et al. disclose the following claim limitations:

As per claims 24, 30, and 36: a printhead that moves relatively to the record medium (column 18, lines 26-52); a counting unit configured to count the number of ejected ink droplets to a predetermined area on the record medium from the print head (column 18, lines 26-52); and a comparison unit configured to compare the number of ejected ink droplets counted by the counting unit with a predetermined value (column 18, lines 26-52).

Katayama discloses the following claim limitations:

As per claim 6: wherein the print head forms an image on the first side of the record medium and then forms an image on the second side of the back of the record medium, thereby forming images on both sides of the record medium [0018].

As per claim 13: a cancel unit configured to cancel execution of record of both sides of the record medium based on the number of ejected droplets by the counting unit when the determination unit determines that the double sided record on the record medium is enabled [0039].

As per claims 24, 30, and 36: a determination unit configured to determine whether double-sided record of the record medium is enabled based on a comparison result of the comparison unit [0020] and 0039].

Numata et al. as modified do not disclose:

As per claim 6: before the printhead forms an image on the first side of the record medium, the counting unit counts the number of ink droplets to be ejected to at least one of the predetermined area on the first side and the predetermined area on the second side.

As per claim 13: a second side counting unit configured to count the number of ejected ink droplets to a second side of the record medium before print on the second side of the record medium.

As per claims 24, 30, and 36: a calculation unit configured to calculate the total number of ink droplets based on the counted results of the counting unit while weighting the counted results respectively.

Kamei et al. discloses the following claim limitations:

As per claim 6: before the printhead forms an image on the first side of the record medium, the counting unit counts the number of ink droplets to be ejected to at least

one of the predetermined area on the first side and the predetermined area on the second side (column 8, line 50-column 9, line 18).

As per claim 13: a second side counting unit configured to count the number of ejected ink droplets to a second side of the record medium before print on the second side of the record medium (column 4, line 60-column 5, line 4).

As per claims 24, 30, and 36: a calculation unit configured to calculate the total number of ink droplets based on the counted results of the counting unit while weighting the counted results respectively (column 8, lines 36-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus and methods taught by Katayama with the disclosure of Kamei et al. in order to reduce memory errors and to prevent the lowering of image quality.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A) and Katayama (JP 2000-141627 A), and further in view of Shimada (US 20030038870).

Numata as modified discloses:

Numata et al. discloses the counting unit counts the number of ejected droplets to a predetermined area (column 18, lines 26-52).

Numata et al. as modified does not disclose:

As per claim 7: an area specification unit configured to specify the predetermined area.

As per claim 8: the area specification unit specifies one page of the record medium as the predetermined area.

Shimada discloses:

As per claim 7: an area specification unit configured to specify the predetermined area [0115].

As per claim 8: the area specification unit specifies one page of the record medium as the predetermined area [0115].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus taught by Katayama as modified with the disclosure of Shimada for more accurate character recognition.

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A), Katayama (JP 2000-141627 A), and Shimada (US 20030038870), and further in view of Anderson et al. (US 20020145640).

Numata et al. as modified disclose:

The apparatus of claim 7

Numata et al. as modified do not disclose:

As per claim 9: the printhead moves within one pass in a determined printing area.

As per claim 11: the head moves a predetermined distance in a predetermined direction relative to the recording medium.

Anderson et al. discloses:

As per claim 9: the printhead moves within one pass in a determined printing area [0002].

As per claim 11: the head moves a predetermined distance in a predetermined direction relative to the recording medium [0002].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus taught by Numata et al. as modified with the disclosure of Anderson et al. in order to create a higher quality image.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A), Katayama (JP 2000-141627 A), and Shimada (US 20030038870), and further in view of Endo (US 20010019345).

Numata et al. as modified disclose the apparatus of claim 7; however, it does not teach the print head moves relative to the record medium within a predetermined time.

Endo discloses the print head moves relative to the record medium within a predetermined time [0023].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus taught by Numata et al. as modified with the disclosure of Endo in order to create a higher quality image.

Claims 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A) and Katayama (JP 2000-141627 A), and in further view of Ikeda (US 5742301)

Numata et al. as modified disclose the apparatus of claims 1 and 27. Katayama discloses a determination unit to determine double sided record of the record medium to be disabled, then the medium is not reversed [0039]; however, Numata et al. as modified do not disclose a reversal unit that reverses the record medium

Ikeda discloses a reversal unit that reverses the record medium (figure 1, element 24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus taught by Numata et al. as modified with the disclosure of Ikeda in order to provide an easy method of double sided printing.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A) and Katayama (JP 2000-141627 A), and in further view of Jewell (US 6853948).

Numata et al. as modified disclose the apparatus of claim 1; however, it does not disclose a print delay unit configured to delay a start time until recording on a second side of the record medium after printing on a first side of the record medium.

Jewell discloses a print delay unit configured to delay a start time until recording on a second side of the record medium after printing on a first side of the record medium (column 6, lines 5-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus taught by Numata et al. as modified with the disclosure of Jewell in order to provide a high quality double sided print.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Numata et al. (US 5870114 A) and Katayama (JP 2000-141627 A), and in further view of Pickup (US 20030160852).

Numata et al. as modified disclose the apparatus of claim 1; however, it does not disclose an air blowing unit that blows air onto the recording medium; wherein the print on the other side of the record medium is performed after print on the first side; and the air unit blows air on the one side where print is complete before print on the other side is started.

Pickup discloses an air blowing unit that blows air onto the recording medium; wherein the print on the other side of the record medium is performed after print on the first side; and the air unit blows air on the one side where print is complete before print on the other side is started [0032].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus taught by Numata et al. with the disclosure of Pickup in order to provide a high quality double sided print.

Allowable Subject Matter

Claims 15-21, 34 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2853

The following is a statement of reasons for the indication of allowable subject matter: prior art does not teach or suggest an invalidation unit to invalidate the determination of the determination unit based on a type of recording medium based on a recognition unit.

Response to Arguments

Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura E. Martin


6/18/07
MANISH S. SHAH
PRIMARY EXAMINER